CLAIMS

What is claimed is:

1  1.   A method in a video decoding system for adapting to resource constraints, said method
2       comprising steps of:
3          determining whether a resource constrained mode is to be initiated; and
4          responsive to determining that the resource constrained mode is to be initiated,
5              initiating the resource constrained mode, including modifying a resource
6              access priority.

1  2.   The method of claim 1, wherein the resource access priority is a priority that a component is
2       assigned for accessing a data bus.

1  3.   The method of claim 2, wherein the component is selected from a group consisting of: a
2       processor, a video decoder, an audio decoder, a video digital encoder, a memory buffer, a
3       data storage device, and a digital to analog converter.

1  4.   The method of claim 1, wherein the resource access priority is a priority that a component is
2       assigned for accessing a data bus while performing a specific function.

1  5.   The method of claim 4, wherein the specific function is selected from a group consisting of:
2       writing data to a compressed audio buffer, writing data to a compressed video buffer, reading
3       data from a compressed audio buffer, reading data from a compressed video buffer, writing
4       data to a video picture buffer, writing data to a graphical data buffer, reading data from a
5       graphical data buffer, writing data to an alpha-blend plane buffer, writing data to an off-
6       screen buffer, writing data to an audio buffer, reading data from an audio buffer, reading data
7       from an off-screen buffer, and reading data from an alpha-blend plane.

1  6.   The method of claim 1, wherein the resource access priority is a priority that a component is
2       assigned for accessing a data storage device.

1  7.   The method of claim 1, wherein the determining step includes determining that the resource
2       constrained mode is to be initiated responsive to inadequate memory availability.

1   8.     The method of claim 1, wherein the determining step includes determining that the resource

2         constrained mode is to be initiated responsive to inadequate bus bandwidth availability.

1   9.     The method of claim 1, wherein the determining step includes determining that the resource

2         constrained mode is to be initiated responsive to user interaction.

1   10.    The method of claim 16, wherein the resource constrained mode is one of a plurality of

2         resource constrained modes that can be initiated.

1   11.    The method of claim 16, wherein the user interaction includes causing the video decoding

2         system to reduce spatial resolution of video output.

1   12.    The method of claim 16, wherein the user interaction includes causing graphics to be

2         generated and output along with the video output.

1   13.    The method of claim 1, wherein the determining step is responsive to receiving user input

2         requesting a resource constraining service.

1   14.    The method of claim 13, wherein the resource constraining service is an interactive program

2         guide.

1   15.    The method of claim 13, wherein the resource constraining service includes the presentation

2         of a video and graphical data.

1   16.    The method of claim 1, wherein the determining step includes determining that the resource

2         constrained mode should be initiated responsive to receiving from a video transmitter data

3         describing the received video input.

1   17.    The method of claim 1, wherein the received video input is encoded using a Motion Picture

2         Experts Group (MPEG) encoding scheme.

1   18.    The method of claim 1, wherein the modification in resource access priority is responsive to

2         a degree of resource constraint.

1    19.    The method of claim 18, wherein the degree of resource constraint is determined in view of

2          an amount of resource availability and an amount of additional resource needed.

1    20.    The method of claim 19, wherein the resource constraint includes memory constraint.

1    21.    The method of claim 19, wherein the resource constraint includes bus bandwidth constraint.

1    22.    The method of claim 19, wherein the amount of additional resource needed is determined at

2          least according to at least one look-up table.

1    23.    The method of claim 19, wherein the amount of additional resource needed is determined at

2          least according to a history of resource need.

1    24.    The method of claim 19, wherein a function for which resource access priority is modified is

2          also based upon degree of resource constraint.

1    25.    The method of claim 19, wherein a component for which resource access priority is modified

2          is also based upon degree of resource constraint.

1    26.    The method of claim 1, wherein the determining and initiating steps are performed by

2          processor in a digital home communication terminal.

1    27.    The method of claim 1, wherein the initiating step includes continuing to present audio to a

2          user at a regular rate and maintaining audio and video synchronization during the resource

3          constrained mode.

1    28.    The method of claim 1, further comprising a step of terminating the resource constrained

2          mode responsive to determining adequate resource availability.

1   29.   A video decoding system for adapting to resource constraints, said system comprising:

2          determination logic configured to determine whether a resource constrained mode is

3          to be initiated; and

4          initiation logic configured to initiate the resource constrained mode responsive to the

5          determination logic, including modifying a resource access priority.

1   30.   The system of claim 29, wherein the determination logic is further configured to determine

2         that the resource constrained mode is to be initiated responsive to inadequate memory

3         availability.

1   31.   The system of claim 29, wherein the determination logic is further configured to determine

2         that the resource constrained mode is to be initiated responsive to inadequate bus bandwidth

3         availability.

1    32.    A video decoding method comprising the steps of:

2               determining that a resource access priority is to be modified; and

3               modifying the resource access priority accordingly.

1    33.    The method of claim 32, wherein the determining step is responsive to a step of determining

2         that at least one resource is constrained.

1    34.    The method of claim 32, wherein the determining step is responsive to a user requesting a

2         resource constraining service.

1